(c) contacting compressed air with one or more second membrane modules at conditions effective to produce a second nitrogen-enriched air stream; and

(d) introducing said second nitrogen-enriched air stream into said fuel tank during periods of high demand for nitrogen-enriched air,

wherein said first membrane modules have a lower O_2 permeance and a higher O_2/N_2 selectivity than said second membrane modules, and

wherein at least one of said first nitrogen-enriched air stream and said second nitrogen-enriched air stream is introduced directly into the fuel in said fuel tank at conditions effective to liberate at least a portion of dissolved O_2 in the fuel.

5. (Twice Amended) The method according to claim 1, wherein said first nitrogen-enriched air stream is introduced directly into the fuel in the fuel tank to liberate at least a portion of dissolved O_2 in the fuel.

14. (Twice Amended) A method for inerting an aircraft fuel tank, said method comprising the steps of:

(a) contacting compressed air with one or more first membrane modules at conditions effective to produce a first nitrogen-enriched air stream;

(b) introducing said first nitrogen-enriched air stream into said fuel tank during cruising;

(c) contacting compressed air with one or more second membrane modules at conditions effective to produce a second nitrogen-enriched air stream; and

(d) introducing said second nitrogen-enriched air stream into said fuel tank during ascent or descent or both,

wherein said first membrane modules have a lower O_2 permeance and a higher O_2/N_2 selectivity than said second membrane modules, and

wherein at least one of said first nitrogen-enriched air stream and said second nitrogen-enriched air stream is introduced directly into the fuel in said fuel tank at conditions effective to liberate at least a portion of dissolved O_2 in the fuel.

16. (Twice Amended) The method according to claim 14, wherein said first nitrogen-enriched air stream is introduced directly into the fuel in the fuel tank to liberate at least a portion of dissolved O_2 in the fuel.

25. (Twice Amended) A system for inerting an aircraft fuel tank, said system comprising:

(a) one or more first membrane modules for separating compressed air into a first permeate stream comprising oxygen-enriched air and a first retentate stream comprising nitrogen-enriched air;

(b) a first conduit for conveying said first retentate stream into said fuel tank during periods of low demand for nitrogen-enriched air;

(c) one or more second membrane modules for separating compressed air into a second permeate stream comprising oxygen-enriched air and a second retentate stream comprising nitrogen-enriched air;

(d) a second conduit for conveying said second retentate stream into said fuel tank during periods of high demand for nitrogen-enriched air; and

(e) a third conduit for introducing at least one of said first retentate stream and said second retentate stream directly into the fuel in said fuel tank to liberate at least a portion of dissolved O_2 in the fuel,

wherein said one of more first membrane modules have a lower O_2 permeance and a higher O_2/N_2 selectivity than said one or more second membrane modules.

Please add new claim 31 as follows.

31. (New) A system for inerting an aircraft fuel tank, said system comprising:

(a) one or more first membrane modules for separating compressed air into a first permeate stream comprising oxygen-enriched air and a first retentate stream comprising nitrogen-enriched air;

(b) a first conduit for conveying said first retentate stream into said fuel tank during periods of low demand for nitrogen-enriched air;

(c) one or more second membrane modules for separating compressed air into a second permeate stream comprising oxygen-enriched air and a second retentate stream comprising nitrogen-enriched air;

(d) a second conduit for conveying said second retentate stream into said fuel tank during periods of high demand for nitrogen-enriched air;

wherein said first and/or second conduits are connected to introduce said first and/or second retentate stream, respectively, directly into the fuel in said fuel tank to liberate at least a portion of dissolved O_2 in the fuel; and

wherein said one or more first membrane modules have a lower O_2 permeance and a higher O_2/N_2 selectivity than said one or more second membrane modules.